

REMARKS

Claims 2 - 15, 25, 26, 31, 38 - 44, 46 and 47 remain active in this application. Claims 1, 16 - 24, 27 - 30, 32 - 37 and 45 have previously been canceled. A previous amendment to the specification has been further amended, for clarity, at the request of the Examiner and to correct a typographical error in the prior amendment. Claim 13 has been amended. Support for the amendment of the claim is found throughout the application, particularly in Figures 1 - 2 and the description thereof on pages 10 - 12. No new matter has been introduced into the application.

The opportunity for an interview with Examiner Payer and her Supervisor, Mr. Ashley, on June 7, 2007 is gratefully acknowledged. At the interview, it was determined that previous amendments to page 11 presented February 6, 2002, were confusing, possibly ambiguous and potentially raising inferences contrary to the plain language of the preceding sentences of the original specification which the previous amendatory language sought to amplify. (Substantial further discussion of this passage and the previous amendment has been provided at pages 14 - 18 of the response filed February 20, 2007.) Accordingly, it was agreed at the interview that the above further amendatory language was appropriate to clarify the prior amendment and, being fully and clearly consistent with the original language of the specification and contains no new matter. (Again, the original disclosure refers to application of the powder to the base in the "area being clad" which, again respectfully calling the Examiner's attention to the discussion on pages 14 - 18 of the response filed February 20, 2007, is clearly identified with the area of

the puddle, as distinct from the area upon which the laser impinges, particularly when read in conjunction with Figures 2 and 3 which clearly shows the bead/blade having a cross-section in the form of a half-ellipse corresponding to the area of the puddle 17 and which must therefore be distinct from and not congruent with the area of impingement of the laser beam since the area of the puddle is clearly disclosed to be determined by the *scanning* of the laser beam.) It was further agreed at the interview that the proposed amendments to claim 13, submitted above were descriptive of that feature of the invention and precluded inferences asserted as the basis of the requirement for restriction as well as distinguishing over the prior art of record in the manner previously agreed in regard to other claims in the application. Thus, the amendments made above were agreed at the interview to be appropriate and responsive to both the present action and the requests made by the Examiner at the interview.

Restriction has been required between the inventions, as identified by the Examiner, defined by the claims of Group I, claims 2 - 12, 25, 26, 31, 38 - 44, 46 and 47 and Group II, claims 13 - 15. Provisional election of the invention of Group I has been made with traverse above. The requirement for restriction is traversed as being based on erroneous construction of the claimed subject matter and, particularly as being moot in view of the amendments to claim 13 made above.

The Examiner construes the language of claim 13 as inferring from the recitation that the recited powder tube moves with the laser or laser beam that the areas on which the laser beam and powder impinge at the surface of the die body are the same, as indicated in the paragraph of the requirement for restriction bridging pages 2 and 3

of the present action. The Examiner appears to be also inferring (from the above inference) that if the powder and laser beam impinge upon the same area, that the powder is melted by direct heating from the laser beam in a manner similar to the prior art. It is respectfully submitted that neither inference is necessitated by or even logically follows from the recitation that the powder tube move with the laser beam and the asserted basis for finding distinctness between the inventions that the Examiner has identified is illusory. Moreover, the amendatory language presented February 20, 2007, in the context of the existing language of claim 13 which recites the formation of a puddle in the base along a path, the delivery of the powder to *the base* and the powder being melted *in the puddle at a surface thereof* was intended to preclude the very inferences that the Examiner has made.

Accordingly, claim 13 has been further amended to assure that the inference by which the Examiner has sought to demonstrate distinctness of the identified inventions has been fully precluded and it is respectfully submitted that no basis for maintaining the requirement for restriction currently exists, as agreed at the interview of June 7, 2007. Thus it is respectfully submitted that reconsideration of the requirement for restriction is in order and that, upon such reconsideration, the requirement should be withdrawn. Therefore, such actions are respectfully requested.

Additionally, at the interview of June 7, 2007, it was agreed that independent claim 38 and claims depending therefrom as well as claims 13 - 15 as amended above were deemed to be distinct from the prior art of record. The Examiner and Mr. Ashley, however, expressed some

reservation concerning product-by-process claim 44 and claim 47, depending therefrom and requested that further remarks be presented in regard thereto. The following remarks are provided in response to that request.

It is well-established that a product-by-process claim is a claim to the product regardless of how it may be produced. Accordingly, it is similarly well-established that application of a prior art reference which appears to show the product can be considered to support a *prima facie* determination of unpatentability notwithstanding that the product shown by the reference may be made by a different process. This analysis of product-by-process claims thus merely serves to shift the burden to Applicant to demonstrate a distinctive difference of the invention from the product shown by the reference to shift the burden of making a *prima facie* demonstration of unpatentability back to the Examiner.

It is respectfully submitted that Applicant has clearly and copiously met the burden of demonstrating a significant difference in the product made in the manner claimed. Specifically, the Examiner's attention is called to comparative photographs A - H appended to the response filed February 20, 2007, in which photographs A and B correspond to the invention and other pairs of photographs represent the bead formed by other techniques before and after shaping to form a blade. While shown in plan view rather than cross-section (particularly by comparison of the photographs before and after working to form a blade, respectively, in each pair of comparative photographs) it can be readily observed that the bead shown in photograph A is of near net shape, as disclosed and illustrated in Figure 3 of the application, and is substantially devoid of surface ripples which uniformly characterize the beads formed by other techniques.

Importantly, photograph G shows the result of melting powder *prior* to formation of a puddle and which is characterized not only by surface ripples, some of which are sufficiently severe to cause discontinuities in the resulting blade, but also substantial spattering and other defects compromising the shape for use as a blade. Other blade defects (e.g. porosities and cracks as well as much broader top surfaces) are indicated or readily observed in the blades formed from the beads produced by other techniques as shown in comparative photographs D and F.

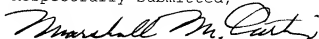
In this regard, the Examiner's attention is also called to the pages of the Rossi textbook also attached to the response filed February 20, 2007. In that textbook, the surface ripples of the bead are attributed to currents of molten metal in a puddle/crater and differential temperatures and corresponding surface tension within the puddle/crater which upset the equilibrium within the puddle/crater. Thus such ripples are *characteristic of and unavoidable in all beads formed in conjunction with applying material in molten form concurrently with melting of the metal of the base*. Since these ripples which are extremely undesirable in a bead from which a blade is to be formed due to causing a different cross-sectional shape of the bead and requiring the ripples to be removed during shaping of the blade (thus requiring the removal of more material), it is clear that the bead and blade produced by the recited process is, in fact, significantly different from the beads and blades produced by other techniques such as those of the references of record and, moreover, that difference is clearly a difference in kind and not of degree such as to be patentably so. Therefore, it is respectfully submitted that, after applying a product-by-

process analysis and a significant and patentable difference of the product in accordance with the invention and formed by the recited method from the products of the various prior art methods having been demonstrated, the burden has again been shifted to the Examiner to *prima facie* demonstrate unpatentability of the claimed product; a product which could not have been produced using techniques known prior to the invention. Simply put, the prior art of record provides no evidence that the level of ordinary skill in the art extends to the production of a bead or blade having the clearly distinct attributes of being of near net shape (including the absence of ripples which degrade any approach to near net shape) and the avoidance of defects therein. Accordingly, Applicant's burden having been met, it is respectfully submitted that, in the absence of showing production of a bead or blade having attributes similar to those of the invention discussed above, it is respectfully submitted that the Examiner must consider the product-by-process claims to be patentably distinct from the prior art of record.

Since all requirements contained in the outstanding official action have been fully answered and shown to be in error and/or inapplicable to the present claims and a full response made to all requests made by the Examiner and Mr. Ashley at the interview of June 7, 2007, it is respectfully submitted that reconsideration is now in order under the provisions of 37 C.F.R. §1.111(b). Upon reconsideration, it is also respectfully submitted that the requirement for restriction should be withdrawn and that this application is in condition for allowance including allowance of all claims currently pending therein. Accordingly, such actions are therefore respectfully requested.

If an extension of time is required for this response to be considered as being timely filed, a conditional petition is hereby made for such extension of time. Please charge any deficiencies in fees and credit any overpayment of fees to Attorney's Deposit Account No. 50-2041.

Respectfully submitted,



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